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ART 34 AMDT**WHAT IS CLAIMED IS:**

1. A method for producing polyunsaturated fatty acids from algae, comprising the step of applying at least growth-limiting factor to an algae culture, causing growth arrest of said algae culture and production and stocking by algae in culture of polyunsaturated fatty acids.  
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2. The process of claim 1, wherein the growth-limiting factor is silicate deprivation.
3. The process of claim 1, wherein the growth-limiting factor is a nutrient deprivation.  
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4. The process of claim 1, 2 or 3, wherein more than one growth-limiting factor is applied.
5. The process of claim 1, 2, 3 or 4, wherein the algae is diatomaceous *Chaetoceros gracilis*.
- 15 6. The process of claim 1, 2, 3 or 4, wherein the algae is diatomaceous *Skeletonema costatum*.
7. The process of claim 1, 2, 3, 4, 5 or 6, wherein the growth-limiting factor is applied at the end of the exponential growth phase.
8. The process of claim 1, 2, 3, 4, 5, 6 or 7, wherein the growth  
20 limiting factor is applied once the algae culture has reached a concentration of at least  $10^7$  cells/mL.